

VERTICAL LAUNCH ANTISUBMARINE ROCKET (VLA)



Navy ACATIII Program

Total Number of Systems:	438 missiles
Total Program Cost (TY\$):	\$630.2M
Average Unit Cost (TY\$):	\$0.84M
Full-rate production:	FY93

Prime Contractor

Loral
Cleveland, OH

SYSTEM DESCRIPTION & CONTRIBUTION TO JOINT VISION 2010

The Vertical Launch Antisubmarine Rocket (VLA) is a ballistic missile designed to deliver the Mk 46 Mod 5 torpedo to a water entry point. VLA is intended to provide vertical launch-capable surface combatants (without antisubmarine rocket rail launchers) with an all-weather, quick reaction, standoff antisubmarine weapon capability. It is installed in Aegis ships (cruisers and destroyers) with the Mk 41 Vertical Launching System (VLS) and DD 963-class destroyers with Mk 41 VLS. VLA includes a solid propellant booster with thrust vector control to guide the missile from a vertical orientation through a pitchover maneuver into a trajectory intended to deliver the torpedo to an aim point on the ocean surface.

Pre-launch commands for the VLA are provided by the Antisubmarine Warfare Combat System (ASWCS), which includes the Mk 116 Mod 6 (or 7) Underwater Fire Control System (UFCS), the Naval Tactical Data System (NTDS) data link receive capability, hull-mounted sonar AN/SQS-53B (the primary acoustic sensor for VLA targeting), towed tactical array sonar AN/SQR-19, data processor AN/SQQ-28 for sonobuoy data transmitted from a Light Airborne Multi-Purpose System (LAMPS) Mk

III helicopter, and the operators. The AN/SQS-53B and AN/SQR-19 are shipboard sensors, which provide detection, classification, and localization (position and movement of target) information for processing by the UFCS. NTDS allows another platform (ship or aircraft) to share information that it has on enemy submarine position and movement with a VLA ship by transmitting the information for use by the UFCS. LAMPS Mk III can relay similar submarine information from its deployed sonobuoys to its assigned VLA ship. Localization information, in conjunction with environmental data at the launch ship (e.g., surface winds, relative humidity), is used by the UFCS to compute an aim point (intended water entry point) for the VLA.

VLA missile inspection, as well as component replacement, missile assembly, and checkout (test) are conducted at an Intermediate Maintenance Activity (IMA) where the VLA missile is placed into a canister for storage or transportation to the ship. The canister is loaded into the VLS aboard ship and the VLA is fired from the canister. There is no corrective maintenance of VLA performed aboard ship. Component repair will be conducted at the depot level.

Under certain conditions, the VLA system could contribute to the *Joint Vision 2010* concept of *full-dimensional protection* by enhancing ship self protection against threat submarines that have “leaked” past outer antisubmarine warfare (ASW) defenses. Given that some of the ships capable of firing VLAs are also platforms from which strike operations can be executed, the VLA system could indirectly contribute to the concept of *precision engagement*, again, under certain conditions.

BACKGROUND INFORMATION

The VLA program was initiated in the early 1980s to fulfill the need for a mid-range attack capability for surface ships with vertical launch systems. The VLA program was canceled in April 1988, in anticipation that another acquisition program, Sea Lance, would result in a longer -range ASW standoff weapon. In late 1988, Congress provided funding for a one-time buy of 300 VLAs until the surface ship-launched Sea Lance was fielded. This quantity was subsequently defined as 100 missiles for LRIP, with an additional 200 missiles for full production. VLA development continued, with OPEVAL occurring in August 1990. COMOPTEVFOR concluded that VLA was not operationally suitable and that low reliability precluded evaluation of operational effectiveness. FOT&E was conducted during June-August 1992 (missile assembly and encanisterization at the intermediate maintenance activity at the Naval Weapon Station, Yorktown, VA during June-July, and at-sea OT at an underwater test range of the Pacific Missile Range Facility, Barking Sands, HI, during late August).

Inclusion of this report is to provide the status of the program, following DOT&E’s B-LRIP report. Notwithstanding DOT&E’s B-LRIP report conclusion that the overall VLA system is not operationally effective, the Navy proceeded with production beyond LRIP, without correcting the major deficiency in a supporting shipboard system that rendered the overall VLA system not operationally effective. That deficiency remains uncorrected, although an additional 138 VLAs (beyond the one-time buy of 300) were acquired.

TEST & EVALUATION ACTIVITY

There has been no T&E activity since FY92.

TEST & EVALUATION ASSESSMENT

Based on the FY92 FOT&E results, the Navy's OTA concluded that the VLA missile is operationally effective and operationally suitable, and that the VLA IMA is operationally suitable. DOT&E concluded that while the VLA missile is operationally effective, the overall VLA system is not operationally effective due to a deficiency in a supporting shipboard system. The Navy's continued mode of using VLA during training validates the DOT&E conclusion.

Since further procurement is not planned and there is no planned T&E, this constitutes our last report on VLA.

